

CLAIMS

1. An elevator safety device, comprising:

a safety circuit including a safety relay main contact for operating a brake device for braking a car; and

a detection circuit for generating, when the car stops during a normal operation, a safety relay instruction signal for operating the safety relay main contact to such a direction that the brake device puts brakes, and for detecting whether or not the safety relay main contact is operated in response to the safety relay instruction signal.

2. The elevator safety device according to claim 1, wherein the detection circuit includes a safety relay monitor contact that opens/closes mechanically in conjunction with the safety relay main contact, and the detection circuit detects a state of the safety relay main contact based on a state of the safety relay monitor contact.

3. The elevator safety device according to claim 1, wherein:
the safety relay main contact closes during the normal operation and opens under an abnormal elevator operation;

the safety circuit includes a bypass relay main contact that is parallel-connected with the safety relay main contact and that

opens during the normal operation; and

the detection circuit generates, when generating the safety relay instruction signal, a bypass instruction signal for closing the bypass relay main contact prior to the generation of the safety relay instruction signal.

4. The elevator safety device according to claim 3, wherein the detection circuit includes a bypass relay monitor contact that opens/closes mechanically in conjunction with the bypass relay main contact and detects a state of the bypass relay main contact based on a state of the bypass relay monitor contact.

5. The elevator safety device according to claim 3, wherein the detection circuit detects whether or not the bypass relay main contact is operated in response to the bypass instruction signal.

6. The elevator safety device according to claim 1, wherein the detection circuit outputs, when an abnormality of the safety relay main contact is detected, an abnormality detection signal to an elevator controller for controlling an operation of an elevator.

7. A method of testing an operation of an elevator safety device that includes a safety relay main contact for operating a brake device for braking a car, comprising:

a stop detection step of detecting a state where the car stops during a normal operation;

a test instruction step of generating, when the car stops, a safety relay instruction signal for operating the safety relay main contact to such a direction that the brake device puts brakes; and

an abnormality detection step of detecting whether or not the safety relay main contact is operated in response to the safety relay instruction signal.

8. The method of testing an operation of an elevator safety device according to claim 7, wherein the test instruction step and the abnormality detection step are performed each time the car stops.